



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Moran Seeds, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (U.S.C. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

LETTUCE

'Delmar'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 10th day of December in the year of our Lord one thousand nine hundred and eighty-one.

Attest:

Samuel H. Lane
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R. Block
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED
OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY Exp. 16B		1b. VARIETY NAME Delmar		FOR OFFICIAL USE ONLY PV NUMBER 8000082	
2. KIND NAME Lettuce		3. GENUS AND SPECIES NAME Lactuca sativa		FILING DATE 3/25/80	TIME 10:00 A.M. P.M.
4. FAMILY NAME (BOTANICAL) Compositae		5. DATE OF DETERMINATION March 1, 1978		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 3/25/80 11/5/81
6. NAME OF APPLICANT(S) Moran Seeds, Inc.		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 1155 Harkins Road Salinas, California 93901			8. TELEPHONE AREA CODE AND NUMBER (408) 757-3651
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation			10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION California		11. DATE OF INCORPORATION 8-15-63
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Mr. Donald G. Bergam c/o Moran Seeds, Inc. 1155 Harkins Rd. Salinas, CA 93901					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☐ YES ☒ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☐ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

March 20, 1980
(DATE)

Richard L. Linn
(SIGNATURE OF APPLICANT)

General Manager
(SIGNATURE OF APPLICANT)

(DATE)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- 14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

EXHIBIT A

Origin and Breeding History of the Variety

Lettuce: Delmar

Delmar originated from a single plant selection of the variety Montemar made in the Salinas Valley of California in 1972. The single plant selection was labelled 72-R16B and evaluated in 1973 trials. The selection was earlier than Montemar with slightly larger head size. In the 1973 trials, a further single plant selection was made in 72-R16B labelled 72-R16B1.

Eight plants of comparable type were mass selected in 72-R16B1 in 1974 and designated 72-R16B1-1. In trial evaluations in 1974 and 1975, 72-R16B1-1 was up to two days earlier and had more uniform maturity in comparison to Montemar. A mass selection was made in 72-R16B1-1 in 1975, when the genetic makeup of the variety was stabilized, and used to produce a basic seed increase in 1976. The basic seed increase was designated as Exp. 16B.

Two further generations have been produced since 1976. Exp. 16B has remained genetically uniform with no distinct variants arising other than two types of natural rogues that are normally found in several varieties of the Great Lakes varietal class. One type of natural rogue is a large, coarse plant that develops a soft, loose, non-marketable head and occurs at the rate of one plant per 2,700 total plants. The second type of natural rogue is a semi-cos type plant with leaves longer than broad and does not produce a marketable head. The frequency of this rogue occurs at the rate of one plant per 10,800 total plants.

Following three years of trial ground and field testing evaluations, Exp. 16B was named Delmar in March 1979.

Novelty Statement

Lettuce: Delmar

Delmar belongs to the crisphead class of lettuce varieties and to the Great Lakes varietal type. Delmar possesses characteristics most closely resembling those of Montemar from which the variety was originally selected. The maturity of Delmar is up to two days earlier than Montemar and as early as the earlier plants in that variety. Concentration of maturity is generally greater allowing for higher percentage of marketable heads to be harvested during the first cutting. Delmar is primarily adapted for early April to late July plantings in the coastal valleys of central California for mid-June to mid-September harvest.

Delmar is a white seeded variety with similar morphological characteristics to other white seeded Great Lakes type varieties. The seedling emergence is rapid with early vigorous growth. In objective tests of 10-day old seedlings grown under constant light at 25° C. in the growth chamber, the average seedling length, cotyledon length and cotyledon width of Delmar is normally greater than that of Montemar grown under the same conditions with the differences becoming more pronounced with aging of the seed.

Plant and head color of Delmar is dark green. The heads are spherical in shape, have good to adequate cover and have little tendency to spiral. Delmar has less tendency to spiral during periods of high temperature stress than Montemar when grown in the warmer areas of the coastal valleys of central California. Heads are firm to hard at maturity and of medium large, uniform size under summer cropping conditions. Head size is smaller than desirable when planted for early spring harvest. The butts of the cut heads of Delmar are flat with medium large diameter basal cores and flat ribs. Overall butt appearance is generally more attractive than that of Montemar. Seedstalk elongation is similar to slightly earlier than Montemar but slower than Calmar or Cal K-60. Seedstalks are of uniform height with a medium large, fairly compact panicle of yellow flowers.

Delmar has a lower level of tolerance to tipburn than Montemar or Calmar and a higher level of tolerance than Cal K-60. Delmar is more susceptible to big vein, a soil-borne fungus disease, than Calmar or Salinas but to a lesser degree than Montemar. Delmar is immune to the same races of downy mildew as Calmar.

Summary:

Delmar most closely resembles Montemar. However, Delmar is up to two days earlier and more concentrated in maturity than Montemar. Delmar has a lower level of tolerance to tipburn than Montemar and is less susceptible to big vein.

OBJECTIVE DESCRIPTION OF VARIETY
(LETTUCE)

INSTRUCTIONS: See reverse.

NAME OF APPLICANT(S)

Moran Seeds, Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

1155 Harkins Road
Salinas, California 93901

FOR OFFICIAL USE ONLY

PVPO NUMBER

297 - 1 -

8000082

VARIETY NAME OR TEMPORARY
DESIGNATION

Delmar CMA 10/16/80

Place the appropriate number that describes the varietal character of this variety in the boxes below.

1. PLANT TYPE:

4 2

10 = CUTTING (Leaf)

20 = STALK

50 = BUTTERHEAD

60 = LATIN

70 = OTHER (Specify)

30 = COS

31 = SELF-CLOSING
GROUP

32 = LOOSE-CLOSING
GROUP

40 = CRISPHEAD

41 = IMPERIAL GROUP

42 = GREAT LAKES GROUP

43 = VANGUARD

44 = NEW YORK GROUP

2. SEED COLOR:

1

1 = WHITE

2 = BLACK

3 = YELLOW

3. ANTHOCYANIN:

1

1 = ABSENT

2 = PRESENT

4. LEAF CONTAINING ANTHOCYANIN:

4

1 = COVERED

2 = SPOTTED

3 = ALONG MARGIN

4 = ABSENT

5 = OTHER (Specify)

5. LEAF SURFACE TEXTURE:

1

1 = SMOOTH

2 = BLISTERED

6. LEAF SURFACE REFLECTANCE:

2

1 = DULL

2 = GLOSSY

3 = OTHER (Specify)

7. LEAF MARGIN:

2

1 = STRAIGHT

2 = WAVY

3 = CURLED

2

1 = ENTIRE

2 = DENTATE

3 = INCISED

4 = DEEPLY INCISED

5 = OTHER (Specify)

8. LEAF SHAPE:

1

1 = ROUNDED

2 = POINTED

1

1 = BROADER
THAN LONG

2 = LONGER
THAN BROAD

3 = OTHER (Specify)

9. LEAF COLOR: (See reverse.)

7

1 = RED

2 = REDDISH-BROWN

3 = YELLOW

4 = YELLOWISH-GREEN

5 = GREYISH-GREEN

6 = BLUE-GREEN

7 = DARK-GREEN

8 = VERY DARK GREEN

10. HEADS:

1

1 = SPHERICAL

2 = FLATTENED

3 = ELONGATE

4 = POINTED

5 = NON-HEADING

11. PLANT SIZE: (See reverse.)

3

1 = SMALL

2 = MEDIUM

3 = LARGE

12. CULTURE:

1

1 = SUMMER
CROP

2 = WINTER
CROP

3 = NOT
SPECIFIC

4 = UNDER
GLASS

5 = OTHER (Specify)

13. SIZE OF 10-DAY OLD SEEDLING GROWN UNDER CONSTANT LIGHT (Growth Chamber) AT 25° C.: (Place a zero in first box (i.e. 0 2 1) when size is 9 mm. or less.)

6 7

mm. LENGTH OF SEEDLING

2 9

mm. LENGTH OF COTYLEDON

0 8

mm. WIDTH OF COTYLEDON

14. DISEASE RESISTANCE TO: (Enter zeroes in box(es) where there is no special disease resistance.)

1

1 = TIPBURN

0

2 = MOSAIC

0

3 = DAMPING OFF

4

4 = DOWNY MILDEW

0

5 = SCLEROTINIA
ROT

0

6 = BROWN
BLIGHT

0

7 = BIG VEIN

0

8 = OTHER (Specify)

(Same races as Calmar)

15. OUTLINE THE FOURTH LEAF: (For standardization purposes, the fourth leaf should be taken from a 20-day old plant grown under constant light.)

(See attached sheet)

16. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER		NAME OF VARIETY				
Leaf color		Montemar				
Leaf pigmentation		Montemar				
Leaf shape		Montemar				
Plant size		Montemar				
Head size		Montemar				
VARIETY	NO. OF DAYS TO HEAD MATURITY UNDER WINTER CROPPING	LOCATION	NO. OF DAYS TO HEAD MATURITY UNDER SUMMER CROPPING	LOCATION	NO. OF DAYS TO SEED STALK EMERGENCE UNDER SUMMER CROPPING	LOCATION
Submitted			69	Salinas Valley	81	San Juan Bautista, CA
Similar			71	Salinas Valley	82	San Juan Bautista, CA
Name of similar variety →						

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for completing this form:

1. C. M. Rodenburg, 1960, Varieties of Lettuce, An International Monograph, Instituut Voor de Veredeling van Tuinbouwgewassen, Wageningen, Holland.
2. L. L. Morse, 1930, Field Notes on Lettuce, published by Ferry-Morse Seed Co.

LEAF COLOR: Nickerson's or any recognized color fan may be used to determine the leaf color of the described variety. The following lettuce varieties may be used as a guide to identify the eight colors listed on the form.

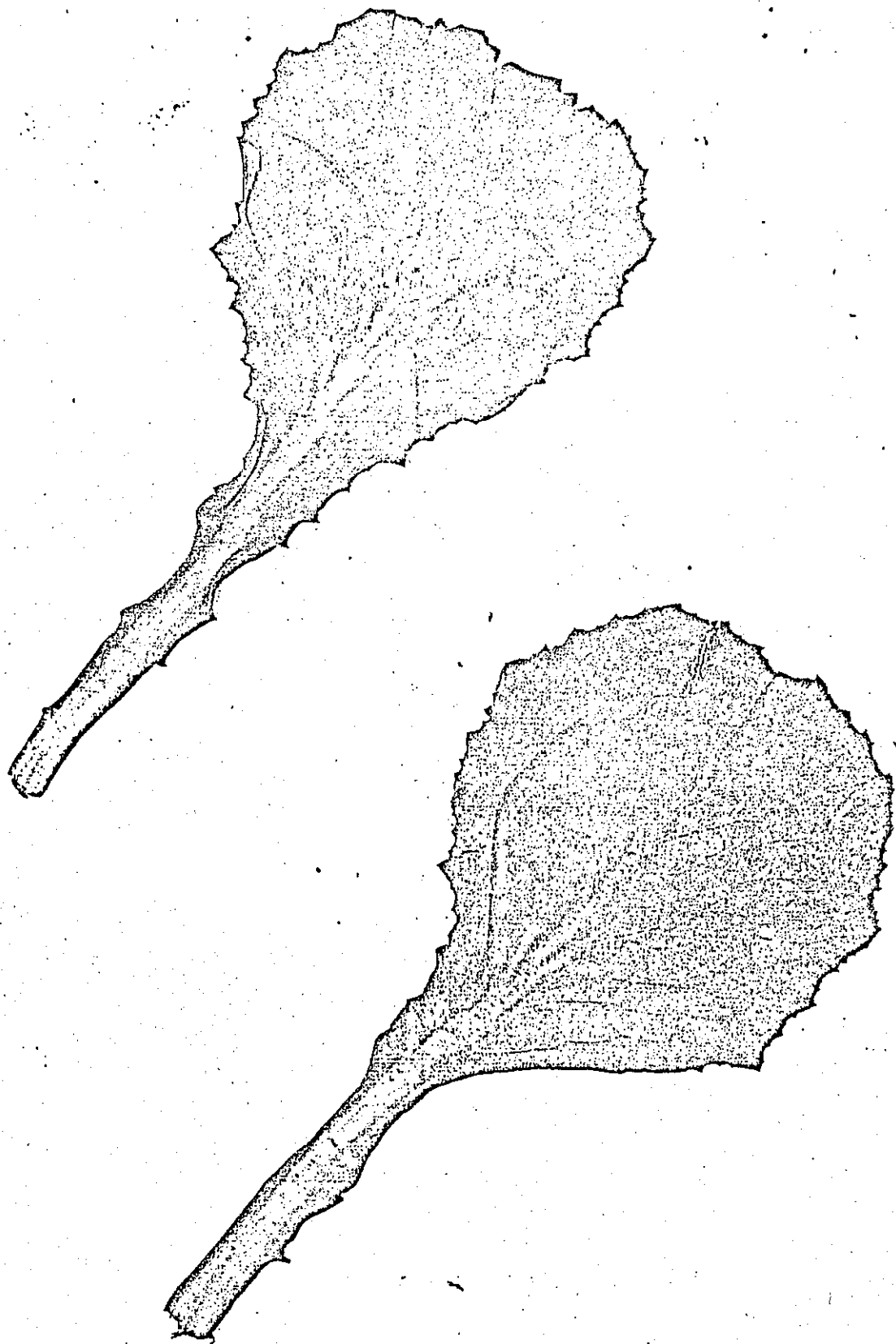
<u>Color</u>	<u>Variety</u>
Red	"Salad Trim"
Reddish-brown	"Ruby"
Yellow	"Salad Bowl"
Yellowish-green	"Oakleaf"
Greyish-green	"White Boston"
Bluish-green	"Bibb"
Dark-green	"Imperial" group
Very dark green	"Deer Tongue"

PLANT SIZE: The following varieties may be used as a guide to identify the plant type size:

TYPE	COMPARABLE VARIETIES		
	SMALL	MEDIUM	LARGE
Cutting (leaf)	Boston-Curled	Prize Head	Grand Rapids
Stalk (stem)	Celtuce	--	
Cos	Express	Parris Island	Giant White
Crisphead	Mignonette	Hanson (Merit)	Climax
Butterhead	Tom Thumb	Big Boston	Mammoth Butter
Latin	Sucrine	Creole	Deer Tongue

EXHIBIT C

15. OUTLINE THE FOURTH LEAF (Fourth Leaf taken from a 20-day old plant grown under constant light at 25° C. in growth chamber.)



Lettuce - "DELMAR"

Outline of fourth true leaf taken from two plants.

EXHIBIT D

Additional Description of the Variety

Lettuce: Delmar

1. In objective tests of 10-day old seedlings grown under constant light at 25° C. in the growth chamber, the average seedling length, cotyledon length and cotyledon width of Delmar is normally greater than that of Montemar grown under the same conditions. The differences become more pronounced with the aging of the seed.
- A. The following measurements are based on growth chamber tests conducted in November, 1979. The measurements represent an average of eight plants. All seed tested was produced in trials on the Moran Seeds, Inc. research farm, San Juan Bautista, California.

<u>Variety</u>	<u>Seed Source</u>	<u>Average Seedling Length</u>	<u>Average Cotyledon Length</u>	<u>Average Cotyledon Width</u>
Delmar	Trial No.1-1979	70mm	30mm	8mm
Montemar	"	67mm	28mm	8mm
Delmar	Trial No.1-1978	69mm	29mm	8mm
Montemar	"	55mm	26mm	7mm
Delmar	Trial No.2-1977	63mm	29mm	8mm
Montemar	"	54mm	24mm	6.5mm

2. Delmar has a lower level of tipburn tolerance than Montemar or Calmar and a higher level of tolerance than Cal K-60 or Calicel. The tipburn ratings in the table below are based on laboratory tests of lettuce varieties grown in five different fields in the coastal valleys of central California. Figures in the table represent tipburn severity index from zero to ~~three~~ ^{five} with ~~three~~ ^{five} as the most susceptible. *per letter rec'd 9/27 CR4*

<u>Variety</u>	<u>FIELDS</u>					<u>Average</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Calmar	0.46	0.21	0.47	1.09	0.58	0.56
Montemar	0.41	0.37	0.50	1.11	0.57	0.59
Delmar	0.4	0.47	1.09	1.24	0.76	0.79
Cal K-60	0.64	0.64	1.25	1.76	0.67	0.99
Calicel	1.23	2.62	2.06	1.9	1.34	1.83

3. Delmar is less susceptible to big vein than Montemar but is more susceptible than Calmar or Salinas. The figures in the table below representing percentage of plants with big vein symptoms were obtained from two trials planted in big vein infested fields in the coastal areas of central California.

<u>Variety</u>	<u>Percentage Big Vein</u>		
	<u>Trial 1-Rep. 1</u>	<u>Trial 1-Rep. 2</u>	<u>Trial 2</u>
Montemar	28.9	37.5	15.25
Delmar	15.1	18.9	7.4
Calmar	13.5	--	6.5
Salinas	5.0	2.8	0

EXHIBIT D Addendum

Additional Description of the Variety

Lettuce: Delmar

I. Seedling measurements

- A. The following measurements are based on growth chamber tests conducted March, 1979, using seed grown at San Juan Bautista, California in 1977. Statistical analysis is based on the measurements of 10 paired comparisons.

	<u>Delmar</u>	<u>Montemar</u>	<u>\bar{d}</u>	<u>\bar{Sd}</u>	<u>t</u>	<u>p</u>
1. <u>Seedling length</u>	33.6	31.9	1.7	4.31	0.394	>0.4
(mm) Range	(19-51)	(15-46)				
2. <u>Cotyledon length</u>	22.5	18.5	4.0	1.18	3.3945	.01-.001
(mm) Range	(19-26)	(12-22)				
3. <u>Cotyledon width</u>	8.8	7.8	1.0	0.283	3.5356	.01-.001
(mm) Range	(8-10)	(7-9)				

- B. The following measurements are based on growth chamber tests conducted in November, 1979, using seed grown at San Juan Bautista from the years 1977, 1978 and 1979. Statistical analysis is based on the measurements of 10 paired comparisons.

1977

	<u>Delmar</u>	<u>Montemar</u>	<u>\bar{d}</u>	<u>\bar{Sd}</u>	<u>t</u>	<u>p</u>
1. <u>Seedling length</u>	61.5	51.8	9.7	2.65	3.660	.01-.001
(mm) Range	(57-72)	(43-56)				
2. <u>Cotyledon length</u>	27.9	22.5	5.4	1.466	3.68	.01-.001
(mm) Range	(22-34)	(18-26)				
3. <u>Cotyledon width</u>	7.7	6.4	1.3	0.269	4.836	<.001
(mm) Range	(7-9)	(6-7)				

1978

	<u>Delmar</u>	<u>Montemar</u>	<u>\bar{d}</u>	<u>\bar{Sd}</u>	<u>t</u>	<u>p</u>
1. <u>Seedling length</u>	67.9	52.6	15.0	2.57	5.84	<.001
(mm) Range	(61-78)	(44-63)				

2. <u>Cotyledon length</u>	28.6	24.7	3.9	0.846	4.609	<.001
(mm) Range	(26-31)	(21-27)				
3. <u>Cotyledon width</u>	7.8	6.8	1.0	0.24	4.159	<.001
(mm) Range	(7-9)	(6-7)				

1979

	<u>Delmar</u>	<u>Montemar</u>	<u>\bar{d}</u>	<u>\bar{Sd}</u>	<u>t</u>	<u>p</u>
1. <u>Seedling length</u>	70.3	66.2	4.1	1.50	2.739	.05-.01
(mm) Range	(66-74)	(59-72)				
2. <u>Cotyledon length</u>	29.7	27.6	2.1	0.80	2.612	.05-.01
(mm) Range	(27-33)	(23-32)				
3. <u>Cotyledon width</u>	8.1	8.0	0.1	0.232	0.430	>0.4
(mm) Range	(7-9)	(7-9)				

II. Tipburn severity index

The tipburn ratings in the table below are based on evaluation of five lettuce cultivars tested in three fields located in the Salinas Valley. Figures in the table represent tipburn severity index* from zero to five with five as the most susceptible.

<u>Cultivar</u>	<u>FIELDS</u>			<u>Average</u>
	<u>1</u>	<u>2</u>	<u>3</u>	
Calmar	0.0	0.0	0.01	0.0033
Montemar	0.01	0.01	0.03	0.016
Delmar	0.15	0.10	0.21	0.15
Cal K-60	0.21	0.24	0.47	0.31
Calice1	0.88	1.38	2.87	1.71

*Severity index is the mean rating based on a scale from 0.0 to 5.0 of heads with tipburn symptoms

III. Big vein tolerance

The figures in the tables below representing percentage of plants with big vein symptoms were obtained from fifteen trials planted in big vein infested fields in the coastal valleys of Central California from December, 1976 through August, 1977.

Table 1: Percentage of plants with big vein symptoms in six trials consisting of single beds of each variety; 60-70 plants per bed.

% Big vein symptoms

TRIAL NO.

Variety	1	2	3	4	5	6	Average
Delmar	7.4	10.0	12.8	31.4	41.4	50.0	25.5
Montemar	15.25	20.7	19.6	56.7	69.2	89.2	45.1

Table 2: Percentage of plants with big vein symptoms in four trials consisting of two replications of each variety; 60-70 plants per replication.

% Big vein symptoms

TRIAL NO.

Variety	Rep.	1	2	3	4	Average
Delmar	I	15.1	36.9	52.1	49.2	38.3
"	II	18.9	44.7	58.9	42.1	41.2
Montemar	I	28.9	60.2	84.7	86.7	65.1
"	II	37.5	68.9	95.5	84.1	71.5

Table 3: Percentage of plants with big vein symptoms in five large field trials consisting of four - 100 foot sections of adjacent beds of Delmar and Montemar.

% Big vein symptoms

TRIAL NO.

Variety	1	2	3	4	5	Average
Delmar	15.8	8.1	9.5	5.4	7.6	9.3
Montemar	31.3	13.4	16.1	8.4	9.8	15.8

IV. Maturity Data

The following maturity and yield data from twelve lettuce research and field trials grown in the Salinas Valley, Santa Maria, San Juan Bautista and Watsonville areas of California over a period of four years shows that the maturity of 'Delmar' is earlier and more concentrated than that of 'Montemar'. The differences are expressed by the higher percentage of marketable heads or the larger number of cartons cut of 'Delmar' in comparison to 'Montemar' at time of first harvest. 'Delmar' and 'Montemar' were grown on adjacent beds in each of the twelve trials under the

same growing and cultural conditions.

Research Trial 1: Santa Maria area
First irrigation - 1-19-77
Harvest - 4-25-77

Delmar

2 replications: 144 plants
Number of heads harvested: 119 83%

Montemar

2 replications: 131 plants
Number of heads harvested: 93 71%

Note: No plants with big vein symptoms

Research Trial 2: Santa Maria area
First irrigation - 4-7-77
Harvest - 6-22-77

Delmar

2 replications: 185 plants
Number of heads harvested: 172 92.5%

Montemar

4 replications: 350 plants
Number of heads harvested: 265 76%

Research Trial 3: Santa Maria area
First irrigation - 6-2-77
Harvest - 8-13-77

Delmar (17% of plants have big vein symptoms)

2 replications: 140 plants
Number of heads harvested: 138 98%

Montemar (33.2% of plants have big vein symptoms)

2 replications: 148 plants
Number of heads harvested: 109 74%

Field Trial 4: Salinas Valley
First irrigation - 6-15-77
Harvest - 8-19-77

Delmar

4 replications of 100 feet each
Percentage harvested: 80%

Montemar

4 replications of 100 feet each
Percentage harvested: 73%

Field Trial 5: Watsonville area
First irrigation - 6-26-77
Harvest - 9-2-77

Delmar

2 replications: 280 plants
Number of heads harvested: 207 74%

Montemar

2 replications: 315 plants total
Number of heads harvested: 182 58%

Field Trial 6: Watsonville area
First irrigation - 7-8-77
Harvest - 9-16-77

Delmar

Number of cartons harvested per 1,000 bed feet
(4 beds - 250 feet long): 64

Montemar

Number of cartons harvested per 1,000 bed feet
(4 beds - 250 feet long): 58

Field Trial 7: Salinas Valley
First irrigation - 7-9-77
Harvest - 9-16-77

Delmar

Number of cartons harvested per 2,000 bed feet
(8 beds - 250 feet long): 105

Montemar

Number of cartons harvested per 2,000 bed feet
(8 beds - 250 feet long): 74

Field Trial 8: Salinas Valley
First irrigation - 7-10-77
Harvest - 9-20-77

Delmar

Number of cartons harvested per 2,000 bed feet
(8 beds - 250 feet long): 127
Carton weight: 54 pounds (average)

Montemar

Number of cartons harvested per 2,000 bed feet
(8 beds - 250 feet long): 112
Carton weight: 52 pounds (average)

Field Trial 9: Salinas Valley
First irrigation - 8-6-77
Harvest - 10-14-77

Delmar

Number of cartons harvested per 3200 bed feet
(4 beds - 800 feet long): 127
Carton weight: 55 pounds (average)

Montemar

Number of cartons harvested per 3200 bed feet
(4 beds - 800 feet long): 90
Carton weight: 53 pounds (average)

Field Trial 10: Salinas Valley
First irrigation - 5-3-78
Harvest - 7-11-78

Delmar

2 replications: 696 plants
Number of heads harvested: 548 78%

Montemar

2 replications: 728 plants
Number of heads harvested: 466 64%

Field Trial 11: Salinas Valley
First irrigation - 5-22-79
Harvest - 8-2-79

Delmar

3 replications: 455 plants
Number of heads harvested: 382 84%

Montemar

3 replications: 431 plants
Number of heads harvested: 299 69%

Research Trial 12: San Juan Bautista
First irrigation - 4-11-80
Harvest - 6-23-80

Delmar

2 replications: 177 plants
Number of marketable heads: 144 81%
Carton weight: 49 pounds 10 oz. (average of 3 cartons)

Montemar

2 replications: 176 plants
Number of marketable heads: 124 71%
Carton weight: 47.5 pounds (average of 3 cartons)

ASSIGNMENT

WHEREAS, Moran Seeds, Inc. ("Moran"), a corporation duly organized and existing under the laws of the State of Delaware is the owner of United States Plant Variety Protection Certificates (the "Certificates"), listed in Exhibit A hereto and Pending United States Plant Variety Protection Applications (the "Applications"), listed in Exhibit B hereto; and

WHEREAS, in accordance with a Technology Transfer Agreement (the "Transfer Agreement") among Celanese Corporation ("Celanese"), Moran Seeds, Inc., Joseph Harris Company, Inc., CelPril Industries, Inc., Harris Moran International B.V. ("Sellers"), Virginia Chemicals, Inc., Les Produits Organiques du Santerre-Orsan S.A. ("Orsan"), HMS Acquisition Inc., CP Acquisition Inc., and Exploitiemaatschappij Wolwevershaven B.V., dated January 10, 1985, and a Purchase Agreement dated December 7, 1985, as amended, among Celanese, Sellers and Orsan, Orsan has purchased from Moran said Certificates and Applications.

NOW, THEREFORE, in accordance with said Transfer Agreement and Purchase Agreement, Moran assigns to Orsan all of its rights, title and interest in and to said Certificates and Applications.

Moran hereby authorizes Orsan to apply for and obtain the recordation of this Assignment. Moran agrees that it shall, without further consideration, promptly and duly cause to be performed such lawful acts and execution of any other documents as Orsan may reasonably request in order for Orsan to obtain the full benefits of this Assignment and to permit Orsan to be duly recorded in each office, bureau and tribunal in the appropriate jurisdiction as the registered owner or proprietor of each of the rights hereby assigned. Such instruments and documents shall include, without limitation, such applications, affidavits and other documents for filing in such jurisdictions as Orsan may from time to time reasonably request.

By these presents Orsan does hereby accept this Assignment and authorize the recording thereof with the appropriate authorities aforesaid.

IN WITNESS WHEREOF, the parties have caused this Assignment to be executed by its proper officers thereunto duly authorized this 10th day of January, 1985.

MORAN SEEDS, INC.,
Assignor

By: David A. Jenkins
David A. Jenkins
Vice President

LES PRODUITS ORGANIQUES DU
SANTERRE-ORSAN S.A.
Assignee

By: Pl
Title: Attorney-in-fact

STATE OF New York
COUNTY OF New York

Before me, a Notary Public, in and for said County, personally appeared David Jenkins who acknowledged that he is Vice President of Moran Seeds, Inc., the corporation which executed the foregoing instrument and who acknowledged he signed said instrument on behalf of said corporation by authority of its Board of Directors; and that said instrument is the free corporate act and deed of said Moran Seeds, Inc.

Sworn before me at New York this 10th day
of January, 1985

Alex C. Lengyel
NOTARY PUBLIC

(Notary Public)

My Commission Expires:

ALEX C. LENGYEL
Notary Public, State of New York
No. 244211
Qualified in New York County
Commission Expires March 30, 1986

STATE OF New York
COUNTY OF New York

Before me, a Notary Public, in and for said County, personally appeared Patrice LaHoday who acknowledged that he is ~~Patrice LaHoday~~ Patrice LaHoday of Les Produits Organiques du Santerre-Orsan S.A., the corporation which executed the foregoing instrument and who acknowledged he signed said instrument on behalf of said corporation by authority of its Board of Directors; and that said instrument is the free corporate act and deed of said Les Produits Organiques du Santerre-Orsan S.A.

Sworn before me at New York this 10th
day of January, 1985.

Alex C. Lengyel
NOTARY PUBLIC

(Notary Public)

My Commission Expires:

ALEX C. LENGYEL
Notary Public, State of New York
No. 128577
Qualified in New York County
Commission Expires March 10, 1986

United States Plant Variety Protection Certificates

<u>Cert. No.</u>	<u>Date Issued</u>	<u>Kind</u>	<u>Variety Name</u>	<u>Owner</u>
7200145	10/30/74	Garden Bean	Gem	Moran Seeds, Inc.
7200146	11/15/74	Watermelon	Charleston 76	Moran Seeds, Inc.
7400013	5/9/74	Lettuce	Calmaria	Moran Seeds, Inc.
7400014	6/19/74	Lettuce	Cal K-60	Moran Seeds, Inc.
7400071	6/19/74	Lettuce	Cabrillo	Moran Seeds, Inc.
7600032	9/15/77	Lettuce	Vanagara	Moran Seeds, Inc.
7600039	12/8/77	Lettuce	Morangold	Moran Seeds, Inc.
7800028	5/31/79	Muskmelon	Valley Gold	Moran Seeds, Inc.
7900038	1/14/82	Garden Bean	Blue Duet	Moran Seeds, Inc.
7900039	7/15/82	Snapbean	Score	Moran Seeds, Inc.
7900066	11/27/79	Cauliflower	Snowball 123	Moran Seeds, Inc.
8000020	7/31/80	Muskmelon	Top Net	Moran Seeds, Inc.
8000082	12/10/81	Lettuce	Delmar	Moran Seeds, Inc.
8200019	10/28/82	Onion	OMO M	Moran Seeds, Inc. Oshita, Inc.
8200061	3/24/83	Watermelon	Sun Gold	Moran Seeds, Inc.
8200104	10/28/82	Tomato	Advantage	Moran Seeds, Inc.
8200105	11/26/82	Tomato	Moran 3053	Moran Seeds, Inc.
8200027	4/23/83	Lettuce	El Toro	Moran Seeds, Inc.
8100172	9/29/83	Lettuce	Van Mor	Moran Seeds, Inc.
8300113	8/31/84	Muskmelon	Top Net SR	Moran Seeds, Inc.

Exhibit B

Pending United States Plant Variety Protection Applications

<u>Application No.</u>	<u>Filing Date</u>	<u>Kind</u>	<u>Variety Name</u>	<u>Owner</u>
8100167	9/9/81	Lettuce	Yuma	Moran Seeds, Inc.
8300155	7/18/83	Celery	Bishop	Moran Seeds, Inc.
8300156	7/18/83	Celery	Deacon	Moran Seeds, Inc.
8300172	9/1/83	Tomato	Diego	Moran Seeds, Inc.
8400013	12/1/83	Lettuce	Greenfield	Moran Seeds, Inc.



DEED OF ASSIGNMENT

WHEREAS, Les Produits Organiques du Santerre - ORSAN (S.A.), a French corporation having a place of business at 16 rue Ballus, 75009 Paris, France (hereinafter referred to as "ASSIGNOR") owns and is using the Plant Variety Protection Certificates listed on the attached Exhibit for the indicated varieties which were awarded to ASSIGNOR by the Secretary of Agriculture on the indicated dates upon applications filed with the United States Plant Variety Protection Office; and

WHEREAS, Arisix (S.A.), a French corporation having a place of business at 61 rue des Belles Feuilles, 75116 Paris, France,

(hereinafter referred to as "ASSIGNEE") is desirous of acquiring the entire right, title and interest in and to the said varieties and Plant Variety Protection Certificates;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN: Be it known that, for good and valuable consideration, receipt of which is hereby acknowledged, ASSIGNOR has sold, assigned and transferred, and by these presents does sell, assign and transfer unto said ASSIGNEE, and ASSIGNEE'S successors and assigns, all right, title and interest in and to the said varieties and said Plant Variety Protection Certificates in the United States including reissues, and including the right to enforce such rights against any past, present or future violation thereof, the said interest to be held and enjoyed by said ASSIGNEE as fully and exclusively as it would have been and enjoyed by said ASSIGNOR had this assignment and transfer not been made, to the full end and term of any right, title and interest assigned and transferred hereby.

ASSIGNOR further agrees that it will, without charge to said ASSIGNEE, but at ASSIGNEE's expense, cooperate with ASSIGNEE in the assignment of said Certificates and the perfection of all rights thereto, execute, verify, acknowledge and deliver all such further papers and instruments of assignment and transfer

thereof, and will perform such other acts as ASSIGNEE lawfully may request, to obtain or maintain the listed Certificates and to vest title thereto in said ASSIGNEE or ASSIGNEE's successors and assigns.

IN TESTIMONY WHEREOF, an authorized representative of ASSIGNOR has hereunto signed its name to this assignment on the date indicated below.

Les Produits Organiques du Santerre
- ORSAN (S.A.)

Date: 1/11/95

Philippe Rollier

PHILIPPE ROLLIER

Print Name

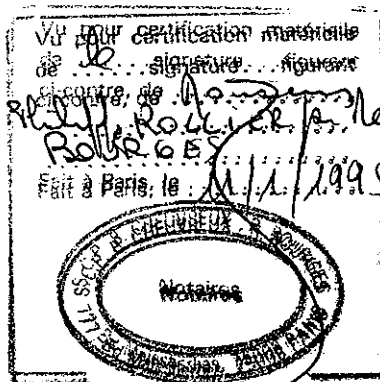
PRESIDENT

Print Title

On this date, _____, 1993, before me, the undersigned notary public, personally appeared the above-named assignor, known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same.

(Notaire)

Seal/Stamp



712

DEED OF ASSIGNMENT

WHEREAS, Arisix (S.A.), a French corporation having a place of business at 61 rue des Belles Feuilles, 75116 Paris, France (hereinafter referred to as "ASSIGNOR") owns and is using the Plant Variety Protection Certificates listed on the attached Exhibit for the indicated varieties which were awarded to ASSIGNOR by the Secretary of Agriculture on the indicated dates upon applications filed with the United States Plant Variety Protection Office; and

WHEREAS, Clause (S.A.), a French corporation having a place of business at 1 Avenue Lucien Clause, 91221 Bretigny sur ORGE Cedex, France, (hereinafter referred to as "ASSIGNEE") is desirous of acquiring the entire right, title and interest in and to the said varieties and Plant Variety Protection Certificates;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN: Be it known that, for good and valuable consideration, receipt of which is hereby acknowledged, ASSIGNOR has sold, assigned and transferred, and by these presents does sell, assign and transfer unto said ASSIGNEE, and ASSIGNEE'S successors and assigns, all right, title and interest in and to the said varieties and said Plant Variety Protection Certificates in the United States including reissues, and including the right to enforce such rights against any past, present or future violation thereof, the said interest to be held and enjoyed by said ASSIGNEE as fully and exclusively as it would have been and enjoyed by said ASSIGNOR had this assignment and transfer not been made, to the full end and term of any right, title and interest assigned and transferred hereby.

ASSIGNOR further agrees that it will, without charge to said ASSIGNEE, but at ASSIGNEE's expense, cooperate with ASSIGNEE in the assignment of said Certificates and the perfection of all rights thereto, execute, verify, acknowledge and deliver all such further papers and instruments of assignment and transfer

thereof, and will perform such other acts as ASSIGNEE lawfully may request, to obtain or maintain the listed Certificates and to vest title thereto in said ASSIGNEE or ASSIGNEE's successors and assigns.

IN TESTIMONY WHEREOF, an authorized representative of ASSIGNOR has hereunto signed its name to this assignment on the date indicated below.

Date: 11/11/95

Arisix (S.A.)

[Signature]

P DE SAINT RAPT

Print Name

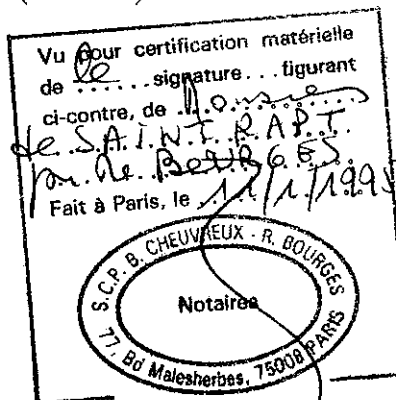
PRESIDENT

Print Title

On this date, _____, 1993, before me, the undersigned notary public, personally appeared the above-named assignor, known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same.

Seal/Stamp

(Notaire)



EXHIBIT

Certif. #	Date Status Begins	Crop	Variety Name
7600032	09/15/77	Lettuce	Vanagara
7600039	12/08/77	Lettuce	Morangold
7605018	09/28/77	Marigold	Cabaret Orange
7800028	05/31/79	Muskmelon	Valley Gold
7800033	12/21/78	Radish	Fancy Red
7800086	01/25/79	Lettuce	Deep Red
7900038	01/14/82	Garden Bean	Blue Duet
7900039	07/15/82	Garden Bean	Score
7900066	11/27/79	Cauliflower	Snowball 123
8000020	07/31/80	Muskmelon	Top Net
8000082	12/10/81	Lettuce	Delmar
8100167	3/29/85	Lettuce	Yuma
8100172	09/29/83	Lettuce	Van Mor
8200027	04/23/83	Lettuce	El Toro
8200045	09/23/82	Turnip	Royal Gem
8200061	03/24/83	Watermelon	Sun Gold
8200068	12/30/82	Egg Plant	Little Fingers
8200104	10/28/82	Tomato	Advantage
8200105	11/26/82	Tomato	Moran 3053
8300024	12/30/83	Radish	Red King
8300113	08/31/84	Muskmelon	Top Net SR
8300155	02/22/85	Celery	Bishop
8300156	01/25/85	Celery	Deacon
8300172	11/29/85	Tomato	Harris Morgan 3075
8400013	2/19/88	Lettuce	Greenfield
8600032	03/11/88	Tomato	Murrieta II

Expired

Expired

Expired

PLANT VARIETY PROTECTION REGISTRATION ASSIGNMENTS

Clause, S.A. to Harris Moran Seed Company

WHEREAS, Clause, S.A. ("Assignor"), a corporation organized and existing under the laws of France, has sold and transferred assets, including plant variety protection registrations, to Harris Moran Seed Company ("Assignee"), a corporation organized and existing under the laws of the State of Maryland;

WHEREAS, Assignor, is the owner of the following plant variety protection registrations:

<u>VARIETY NAME</u>	<u>Registration No.</u>	<u>Issue Date</u>
BLUE DUET	7900038	01/14/82
SCORE	7900039	07/15/82
TOP NET SR	8300113	08/31/84
TOP NET	8000020	07/31/80
SNOWBALL 123	7900066	11/27/79
BISHOP	8300155	02/22/85
DEACON	8300156	01/25/85
LITTLE FINGERS	8200068	12/30/82
EL TORO MI	8200027	04/28/83
DELMAR MI	8000082	12/10/81
GREENFIELD MI	8400013	02/19/88
VAN MOR MI	8100172	03/29/83
YUMA MI	8100167	03/29/85

ASSIGNMENT OF INTELLECTUAL PROPERTY

WHEREAS, HARRIS MORAN SEED COMPANY, a corporation duly organized and existing under the laws of the State of Maryland, having its principal place of business at 4511 Willow Road, Suite 3, Pleasanton, California 94588 ("Assignor"), has, pursuant to that certain Bill of Sale and Assignment dated as of June 30, 1997, transferred to FERRY-MORSE SEED COMPANY (CALIFORNIA), a corporation duly organized and existing under the laws of the State of California, having its principal place of business at 555 Codoni Avenue, P.O. Box 4938, Modesto, California 95352-4938 ("Assignee"), all of the intellectual property Assignor had adopted, used and was using as of the effective date of this Assignment, including without limitation, the intellectual property represented by the United States Plant Variety Protection Certificates of Assignor identified on Schedule A hereto (collectively, the "Property"); and

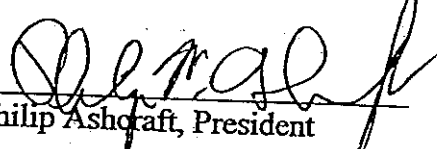
WHEREAS, on the date hereof, Assignee has changed its name to "Harris Moran Seed Company";

NOW, THEREFORE, effective by this instrument as of the close of business on June 30, 1997, and for good and valuable consideration, receipt of which is hereby acknowledged, Assignor hereby assigns to Assignee any and all right, title and interest worldwide in and to the Property and any and all recordations thereof, including, but not limited to, the use of the Property in any manner, all benefit of any and all prior use of the Property, and any and all rights to initiate claims or proceedings for past, present or future infringements of Assignor's rights, title and interest in and to the Property.

Dated: as of June 30, 1997

HARRIS MORAN SEED COMPANY

By:


Philip Ashcraft, President

CERTIFICATE OF AMENDMENT
OF THE
ARTICLES OF INCORPORATION
OF

FERRY-MORSE SEED COMPANY (CALIFORNIA)
(a California corporation)

1400010

ENDORSED
FILED

In the office of the Secretary of State
of the State of California

JUN 30 1997

Bill Jones
BILL JONES, Secretary of State

To the Secretary of State
State of California

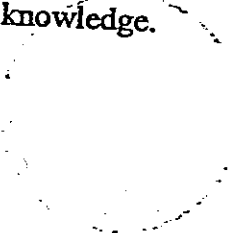
Pursuant to the provisions of the General Corporation Law of the State of California, the undersigned officers of FERRY-MORSE SEED COMPANY (CALIFORNIA), a California corporation (the "Corporation"), do hereby certify as follows:

1. The name of the Corporation is Ferry-Morse Seed Company (California).
2. Article One of the Corporation's Articles of Incorporation, which relates to the name of the Corporation, is hereby amended in its entirety to read as follows:

One. The name of this Corporation is:
HARRIS MORAN SEED COMPANY.
3. The amendment herein provided for has been approved by the Corporation's Board of Directors.
4. The amendment herein provided for was approved by the written consent of the Corporation's sole shareholder in accordance with the provisions of Section 902 of the California General Corporation Law. The total number of outstanding shares of the corporation is 5,000.

IN WITNESS WHEREOF, each of the undersigned does hereby declare under the penalty of perjury that he or she signed the foregoing Certificate of Amendment as of June 30,

1997, in the Town of Modesto, State of California, in the official capacity set forth beneath his or her signature and that the statements set forth in this certificate are true of his or her own knowledge.



Yves Queste

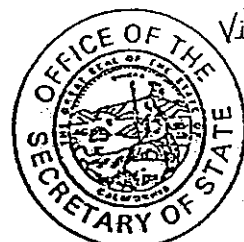
Yves Queste, President

Helen Andritsakis

Helen Andritsakis, Secretary

State of California

SECRETARY OF STATE



J PAGE

I, *BILL JONES*, Secretary of State of the State of California, hereby certify:

That the attached transcript has been compared with the record on file in this office, of which it purports to be a copy, and that it is full, true and correct.

IN WITNESS WHEREOF, I execute
this certificate and affix the Great
Seal of the State of California this

JUN 30 1937



Secretary of State